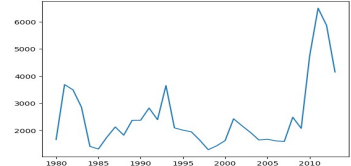
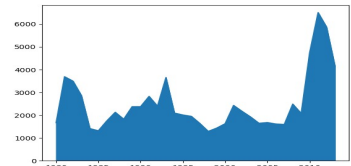
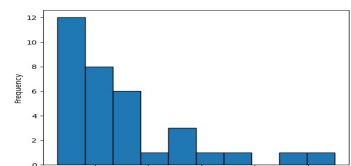
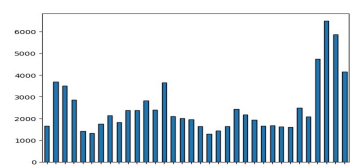


Data Visualization with Python

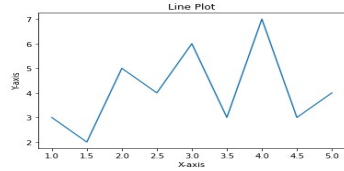
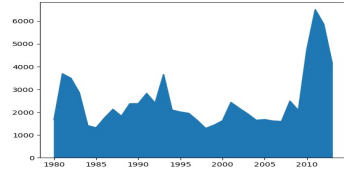
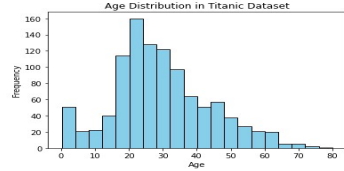
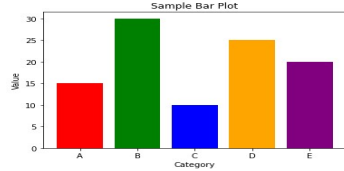
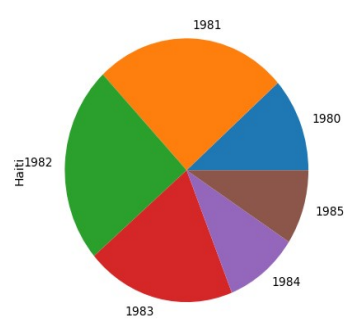
Cheat Sheet : Plotting with Matplotlib using Pandas

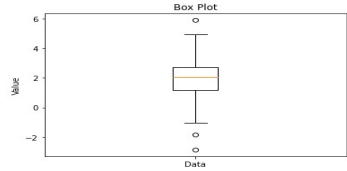
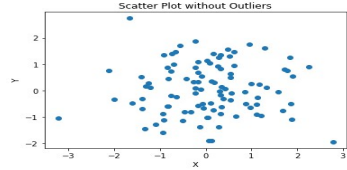
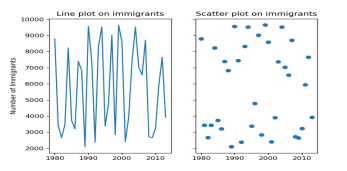
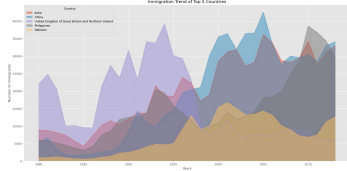
Plot Type	Description	Pandas Function	Example	Visual
Line Plot	Shows trends and changes over time	<code>DataFrame.plot.line()</code> <code>DataFrame.plot(kind = 'line')</code>	<code>df.plot(x='year', y='sales', kind='line')</code>	
Area Plot	Displays data series as filled areas, showing the relationship between them	<code>DataFrame.plot.area()</code> <code>DataFrame.plot(kind = 'area')</code>	<code>df.plot(kind='area')</code>	
Histogram	Displays bars representing the data count in each interval/bin	<code>Series.plot.hist()</code> <code>Series.plot(kind = 'hist', bins = n)</code>	<code>s.plot(kind='hist', bins=10)</code> <code>df['age'].plot(kind='hist', bins=10)</code>	
Bar Chart	Displays data using rectangular bars	<code>DataFrame.plot.bar()</code> <code>DataFrame.plot(kind = 'bar')</code>	<code>df.plot(kind='bar')</code>	

Plot Type	Description	Pandas Function	Example	Visual
Pie Chart	Displays data as a circular plot divided into slices, representing proportions or percentages of a whole	<pre>Series.plot.pie() Series.plot(kind = 'pie') DataFrame.plot.pie(y, labels) DataFrame.plot(kind = 'pie')</pre>	<pre>s.plot(kind='pie', autopct='%1.1f%%') df.plot(x='Category', y='Percentage', kind='pie')</pre>	
Box Plot	Displays the distribution of a dataset along with key statistical measures	<pre>DataFrame.plot.box() DataFrame.plot(kind = 'box')</pre>	<pre>df_can.plot(kind='box')</pre>	
Scatter Plot	Uses Cartesian coordinates to display values for two variables	<pre>DataFrame.plot.scatter() DataFrame.plot(x, y, kind = 'scatter')</pre>	<pre>df.plot(x='Height', y='Weight', kind='scatter')</pre>	

Cheat Sheet : Plotting directly with Matplotlib

Plot Type	Description	Matplotlib Function	Example	Visual
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Plot Type	Description	Matplotlib Function	Example	Visual
Line Plot	Shows trends and changes over time	<code>plt.plot()</code>	<code>plt.plot(x, y, color='red', linewidth=2)</code>	 A line plot with a blue line showing a fluctuating trend over time. The x-axis is labeled 'X-axis' and ranges from 1.0 to 5.0. The y-axis is labeled 'Y-axis' and ranges from 2 to 7. The line starts at (1.0, 3.0), dips to (1.5, 2.0), rises to (2.0, 5.0), dips to (2.5, 4.0), rises to (3.0, 6.0), dips to (3.5, 3.0), rises to (4.0, 7.0), dips to (4.5, 3.0), and ends at (5.0, 4.0).
Area Plot	Display data series as filled areas	<code>plt.fill_between()</code>	<code>plt.fill_between(x, y1, y2, color='blue', alpha=0.5)</code>	 An area plot with a blue filled area representing data over time. The x-axis ranges from 1980 to 2010. The y-axis ranges from 0 to 6000. The area shows a general upward trend with some fluctuations, peaking around 2010.
Histogram	Displays bars representing the data count in each interval/bin	<code>plt.hist()</code>	<code>plt.hist(data, bins=10, color='orange', edgecolor='black')</code>	 A histogram showing the frequency distribution of data. The x-axis is labeled 'Age' and ranges from 0 to 80. The y-axis is labeled 'Frequency' and ranges from 0 to 160. The bars are light blue with black outlines. The distribution is roughly bell-shaped, peaking around age 25.
Bar Chart	Displays data using rectangular bars	<code>plt.bar()</code>	<code>plt.bar(x, height, color='green', width=0.5)</code>	 A bar chart showing data for categories A, B, C, D, and E. The x-axis is labeled 'Category' and the y-axis is labeled 'Value' and ranges from 0 to 30. The bars are colored red, green, blue, orange, and purple respectively. The values are approximately 15, 30, 10, 25, and 20.
Pie Chart	Displays data as a circular plot divided into slices, representing proportions or percentages of a whole	<code>plt.pie()</code>	<code>plt.pie(sizes, labels=labels, colors=colors, explode=explode)</code>	 A pie chart showing the proportion of data for years 1980, 1981, 1982, 1983, 1984, and 1985. The slices are colored blue, orange, green, red, purple, and brown respectively. The labels are placed around the chart. The slices represent different proportions of the whole.

Plot Type	Description	Matplotlib Function	Example	Visual
Box Plot	Displays the distribution of a dataset along with key statistical measures	<code>plt.boxplot()</code>	<code>plt.boxplot(data, notch=True)</code>	
Scatter Plot	Uses Cartesian coordinates to display values for two variables	<code>plt.scatter()</code>	<code>plt.scatter(x, y, color='purple', marker='o', s=50)</code>	
Subplotting	Creating multiple plots on one figure	<code>plt.subplots()</code>	<code>fig, axes = plt.subplots(nrows=2, ncols=2)</code>	
Customization	Customizing plot: adding labels, title, legend, grid	Various customization	<code>plt.title('Title')</code> <code>plt.xlabel('X Label')</code> <code>plt.ylabel('Y Label')</code> <code>plt.legend()</code> <code>plt.grid(True)</code>	

Author(s)

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